

## 5. ENERGY

### Introduction

Energy is essential to our quality of life, but we recognize that energy procurement and consumption is a local, state, national and global issue and that Grafton must do what we can to contribute to a solution. This plan will address three areas of concern for the Grafton community.

- Heating – Grafton’s long, cold winters require significant energy to heat homes and other buildings in the Town.
- Transportation – Because of Grafton’s isolated geographic location, transportation energy use and costs can be considerable for its residents.
- Electric Consumption – Virtually all of today’s technologies rely on electricity to operate and all projections indicate that our electrical consumption needs will continue to increase.

### Energy and the Local Economy

The cost of energy in Grafton, including residential, commercial and governmental use for heating, transportation and electricity was estimated to be \$2.36 million in 2014. This Energy Plan will be used as part of the larger effort to continually improve economic conditions in Grafton, thereby improving the quality of life for its residents. The town can accomplish this by reducing energy costs through energy conservation and by localizing energy sources. Because a large majority of energy is imported from outside of the Town and Windham Region, most of the money spent on energy does not directly benefit the local economy. Reducing the use of energy sources from outside the Town, and shifting reliance to locally produced power, can improve household financial security and stabilize the local economy.

### Energy and the Environment

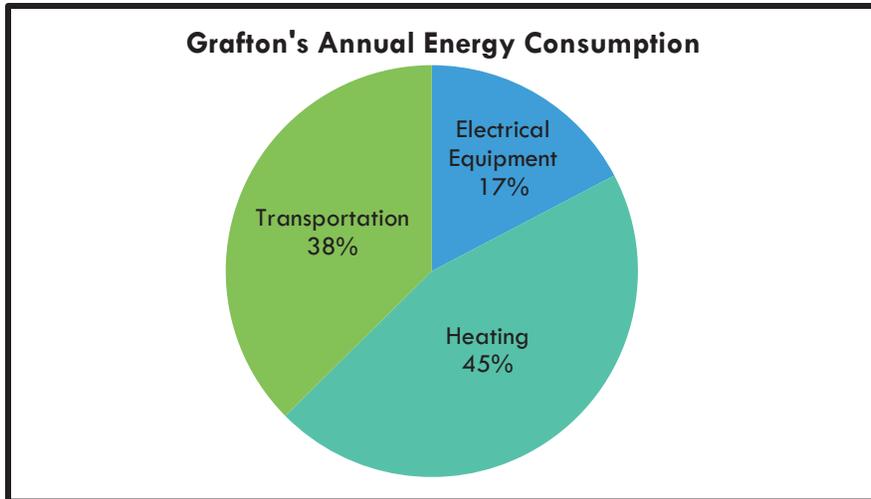
While Grafton can do little to shift the broader state or federal policies, we can do our part to decrease energy usage and increase local power production, both of which will have a positive impact on the environment. This chapter will identify Grafton’s local plans for increasing our energy efficiency and promoting local power generation as a way to do our part to help solve the global situation.

Energy sources can be classified as infinite (i.e. solar & wind), finite (i.e. fossil fuels & uranium), or renewable (i.e. ethanol & fire wood). Every energy source has both advantages and disadvantages, but because of the multiple, significant, negative environmental impacts of fossil fuels, the Town will make all reasonable efforts to reduce fossil fuel consumption. Fossil fuel-dependent energy systems are a significant cause of localized and global environmental damage. From the point where the fuels are produced and refined, to the emissions generated during their use, fossil fuels are responsible for human-induced climate change, related climate-change disasters, and ecological degradation.

Reducing the use of fossil fuels and shifting to more environmentally sustainable energy sources will benefit the town’s environment.

### Grafton’s Estimated Current Energy Use

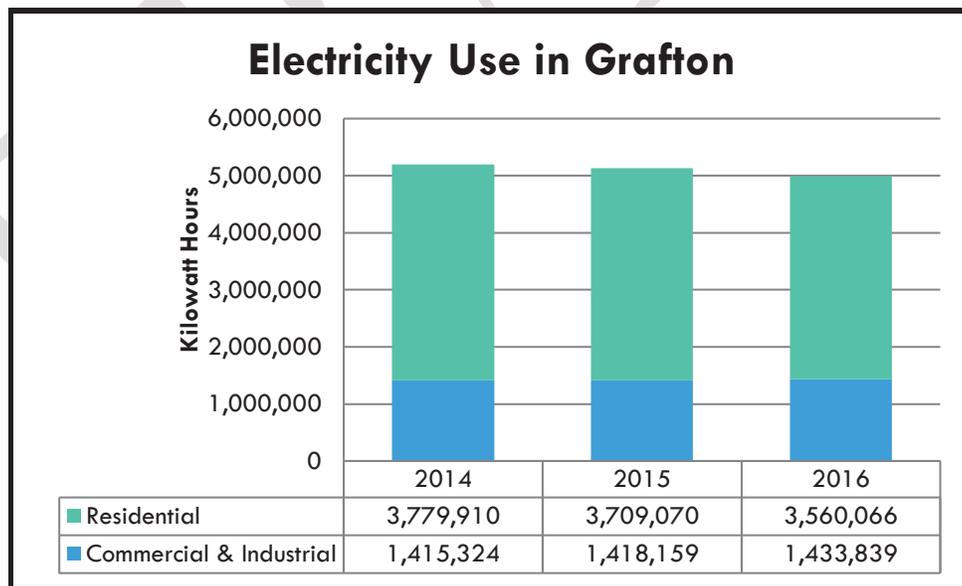
Current-use estimations provide a starting point from which the town can develop informed energy policies that directly address its current context and opportunities going forward. Current use will be analyzed by three sectors, heating, transportation and electric energy consumption.



*Figure #1*

### Current Electricity Demand

Commercial electricity is supplied from Green Mountain Power for the residents of Grafton. Electricity consumption data from Efficiency Vermont is the primary source of this information. This data set combines the energy supplied from all potential electricity providers to that town. It also separates the usage for both the residential and commercial or industrial sectors. Unlike many larger towns, where commercial and industrial sectors use the majority of electrical energy, in Grafton, residential use is historically about twice that of commercial and industrial use.



*Figure #2*

To translate this energy demand into dollar amounts, we can estimate a cost of \$0.1435/Kwh, based on VT state average for December 2016 end-use costs, from U.S. Energy Information Administration. The total cost of electricity in Grafton was approximately \$716,625 in 2016.

Sector	KwH Used in 2016	Total Cost
Residential	3,560,066 KwH	\$ 510,869
Industrial/Commercial	1,433,839 KwH	\$ 205,756
<b>Total</b>	<b>4,993,905 KwH</b>	<b>\$ 716,625</b>

Table #1

**Current Transportation Use**

Grafton’s isolated location makes personal vehicles the primary source of transportation. Below are the calculations showing Grafton’s transportation fuel consumption for 2014.

- Estimated number of fossil-fuel burning vehicles ..... 537 vehicles
- Estimated total distance traveled by Grafton vehicles per year ..... 6,712,500 miles  
*(Based on an estimated average annual distance of 12,500 miles travelled/ vehicle)*
- Estimated total amount of fossil fuel consumed annually by Grafton vehicles..... 277,871 gallons  
*(Based on an estimated average fuel economy of 22 mpg per vehicle)*
- **Grafton’s estimated annual fossil fuel cost for transportation ..... \$664,111/year**  
*(Based on regional average cost per gallon of \$2.39/ gallon; Fall, 2017)*
- **Estimated total annual energy consumption of internal combustion vehicles ..... 33,694 MBtu’s**  
*(Based on 121,259 Btu’s in one gallon of 95% gasoline, 5% diesel)*

**Current Heating Demand**

To account for the different building types and their respective uses, the following estimates divide thermal energy demand by residential buildings (primary residence), seasonal, or commercial use (industrial building thermal demand is not included). As Figure #3 below shows, the large majority of energy usage for heat is for primary residential homes. It should be noted that, although ‘Seasonal Homes’ account for 36% of the ‘Residential Homes’ in Grafton, the Btu calculations assume 15% energy usage for a ‘seasonal home’ compared to a ‘primary residence’.

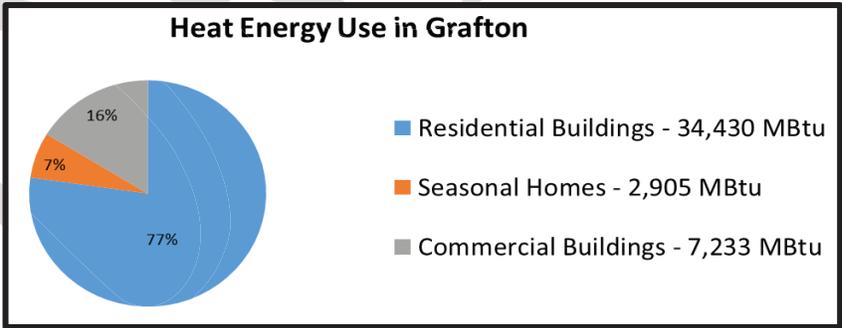


Figure #3

For residential buildings, it was assumed that average annual heating load per residence is 110 million Btu per year, for both space and water heating (Vermont state average). With 313 primary housing units in the town, this arrives at an estimated 34,430 MBtu annual total heat consumption. This translates to an estimated \$650,000 spent in home heating in Grafton during 2014 (roughly \$570,000 from primary residence owners and \$82,000 from seasonal home owners).

90% of Grafton’s heating source is either from fossil fuels or wood. Wood is an abundant, locally grown energy source. Many residents own their own woodlots and processing and selling firewood is part of Grafton’s economy.

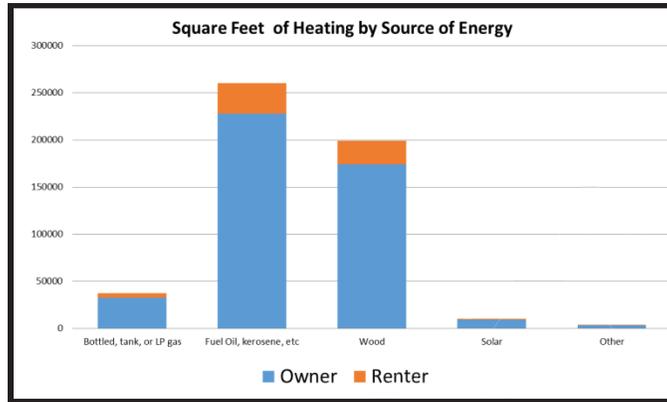


Figure #4

Our data source identified only seventeen (17) commercial buildings in Grafton. It is estimated that the average heating load of these establishments is 425 MBtu per year per building, which is well below the state average range of 700 MBtu to 750 MBtu per year per building. Based on these numbers, we estimate that commercial establishments use approximately of 7,225 MBtu’s per year in Grafton. There was no data on the annual heating costs for commercial buildings.

**Total Energy Costs**

In sum, Grafton pays a staggering amount in energy across the three use sectors. The total estimated cost to the town for electricity, heating, and transportation is roughly \$2.3 million per year. There are significant financial incentives for the town to move toward energy efficiency, on behalf of both the residents and its business owners.

	Total Energy Consumption	Total Energy Expenditures
Electricity	17,040 MBtu	\$716,625
Heating	44,568 MBtu	\$994,584
Transportation	36,818 MBtu	\$650,996
<b>Totals</b>	<b>98,426 MBtu</b>	<b>\$2,362,206</b>

Table #2

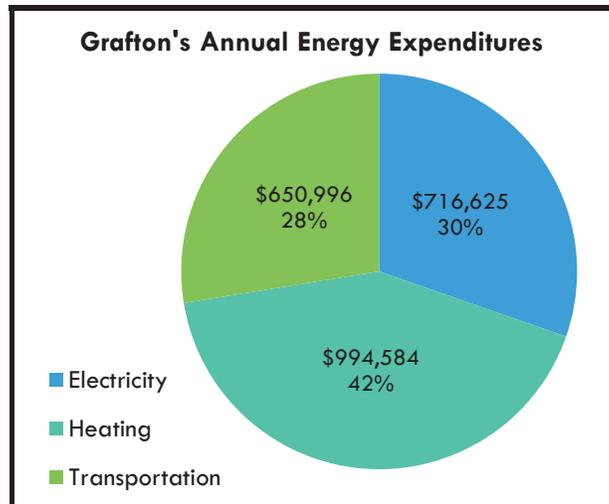


Figure #5

### Grafton's Energy Resources, Constraints, & Potential for Power Generation

Energy resources available in Grafton include wood, solar, wind and hydro energy. There is significant data available to make informed decisions about wind and solar energy, but there is less data available in regards to wood and hydro energy. Grafton's most used local energy resource is wood, which is renewable; almost 40% of the heat produced in Grafton is generated from wood. Continued burning of wood, along with the use of high efficiency wood stoves will be encouraged by the Town.

As new power generation sites are considered, care must be taken not to significantly alter both the village and the surrounding scenic landscape, because Grafton's most valuable resource is its dense historic village surrounded by its rugged, scenic landscape, including its undeveloped ridgelines.

Wind energy has been a controversial and often talked about subject in Grafton since 2012, when an international wind company proposed a 28 turbine facility to be located on a large ridgeline that spans the Grafton and Windham town line. On November 8, 2016, with a vote of 235 to 158, the town voted against the proposal. This vote is a strong indication that Grafton residents are opposed to utility scale wind projects.

Finally, the rivers and streams that flow through Grafton have potential for hydroelectric energy generation. At this high elevation, Grafton lies in the headwaters of the Saxtons River watershed. These headwaters are delicate ecosystems and must not be disturbed. Flooding of the village, as well as surrounding areas is also a concern. Any development of hydroelectric power should utilize run-of-river diversion with no significant impoundment of water.

### Resource Mapping Process and Policy Tool

The maps<sup>23</sup> referred to in this chapter were developed using state-wide GIS data that modeled resource potential for solar and wind energy and identified potential constraints on renewable energy development. They will provide future energy planners and developers with a "coarse screen" method to roughly identify areas in Grafton that may have energy generation potential. They are not siting maps. Further site analysis would need to be done to determine if a proposed generation facility is appropriate and comports with Grafton's Town Plan policies. The maps were used by the

<sup>23</sup> See Appendix V – Maps

Grafton Planning Commission to help determine Land Areas and to develop Goals, Policies and Recommendations. Maps included are:

1. **Possible Constraints for Energy Maps**
  - a. **Map 1** includes Hydric Soils, FEMA Special Flood Hazard Areas, Protected Land (state fee lands and private conservation lands), Deer Wintering Areas, and Vermont Conservation Design Highest Priority Forest Blocks
  - b. **Map 2** includes Agricultural Soils and Act 250 Soil Mitigation Areas
2. **Known Constraints for Energy Generation Map** shows Vernal Pools, Class 1 and 2 Wetlands, DEC River Corridors and/or FEMA Floodways, National Wilderness Areas, State-Significant Natural Communities, and Rare, Threatened, and Endangered Species
3. **Solar Resource Map** shows land generally suitable for solar energy generation, excluding slopes steeper than 15%
4. **Wind Resource Map** shows land generally suitable wind for residential generation, small scale commercial generation, and large scale commercial generation.
5. **Solar Energy Potential Map** shows Prime and Secondary Solar Energy areas.
6. **Wind Energy Potential Map** shows Prime and Secondary Wind Energy areas.

**Solar Resources**

The Solar Resource Map indicates that the Town of Grafton has similar modeled solar resource availability as compared to other towns in the region. The Town supports solar facilities that are properly sited, the where development conforms to the siting policies outlined in this Town Plan.

- Total acres in Grafton .....24,456 acres
- Total acres available for prime solar with no constraints..... 659 acres
  - *Percentage of Grafton land available for prime solar* .....2.7%

Large scale solar projects require access to three phase transmission lines. Grafton has limited access to three-phase power, with lines only along Route 121 from Cambridgeport to the village and along Fisher Hill Road. Grafton also has a high voltage transmission line cutting across the southern and western corner of the town. This greatly limits viable locations for large scale solar projects.

**Wind Resources**

The Wind Resource Map indicates that the mountains on the western border of the Town and several isolated ridges within town are the only commercially viable location for “generally suitable wind for large scale commercial generation”. As previously noted, the Town voted against a proposal on the western border site in November, 2016. Residential Wind facilities may be acceptable as long as they conform to regulations for that respective land use, and do not adversely affect the surrounding landscape, forest blocks, habitat connectivity, or communities through the diminishment of the natural environment, economics, or human health.

Description	Area	Percentage
Total acres in Grafton	24,456 acres	100%
Total acres in Grafton available for wind with no constraints	1,568 acres	6.41%
▪ Residential Wind (under 40 meters tall)	1,210 acres	4.95%
▪ Small Commercial Wind (between 40 and 70 meters tall)	289 acres	1.17%
▪ Utility Wind (over 70 meters tall)	69 acres	0.28%

Table #3

## **Grafton's Preferred Locations**

Grafton supports locally sourced and power generation facilities in a manner that supports existing and proposed land use designations, does not adversely affect the landscape pattern or character of the Town, and supports positive community development.

Grafton supports power generation development in locations that are previously disturbed and do not offer significant opportunities for future development. These areas may include former gravel pits, former and existing parking lots, landfills, etc. Consideration should be given to these under-utilized and previously disturbed areas that exist within the areas modeled to have prime resource potential,<sup>24</sup> and do not conflict with existing and proposed designated land uses.

Areas of special consideration should be all publicly owned lands and buildings. Solar is a particular asset that can directly supplement the electric power requirements of municipal facilities. Solar sited on public lands provides an educational value for citizens and landowners considering solar power generation.

Other areas that are highly desirable for energy production are lands located on or adjacent to agricultural and forestry lands. Grafton understands it must work to preserve its agricultural heritage and facilitate commercial agriculture. Farms that utilize renewable energy generation to augment their farm revenue may be highly desirable. While energy generation must be clearly subordinate to the agricultural land use, energy income will bolster existing farms and create an impetus to open new farms in our community.

Effective land use planning can promote energy conservation. Targeting new power generation development toward areas located close to the community's major roads and existing settlements will minimize the energy consumed by residents commuting, and will reduce the energy required to deliver essential services to residents and businesses.

Factors that the Town would look favorably upon in determining a preferred site designation would include:

- Proximity to 3-phase power – this means a solar facility does not need to have a line upgrade
  - Located near the end of utility distribution lines – this helps support the electric grid
  - Aesthetic considerations – ensuring viewsheds are not impacted by the appearance of renewable energy facilities.
  - Existing roads – important to have existing access without requiring a developer to upgrade roads.
  - Minimal impact of agriculture and agricultural soils – this is the path of least resistance for energy companies and we should not endanger our future ability to produce food.
  - No obstruction of wildlife and habitat corridors as well as riparian buffers.
- South facing slopes with low quality agricultural soils. These areas have high solar value, but otherwise low value as working landscapes.

## **Areas Unsuitable for Renewable Energy Siting**

As shown in the Known Constraints for Energy Generation Map<sup>25</sup>, there is a suite of geographic characteristics that are deemed to exclude any energy generation development. They are mapped

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<sup>24</sup> See Appendix V - Maps

<sup>25</sup> See Appendix V - Maps

vernal pools, Class 1 and 2 wetlands, DEC River Corridors and/or FEMA floodways, and State-significant Natural Communities and Rare, Threatened, and Endangered species.

The Possible Constraints are a set of data layers that don't necessarily exclude energy development, but give a signal to potential developers and planners that more site analysis may be required. These layers include steep slopes, hydric soils, FEMA Special Flood Hazard Areas, Protected lands, deer wintering areas, Vermont Conservation design highest priority forest blocks, habitat connectivity, and agricultural soils. If generation facilities are proposed in these areas, due diligence is required in the siting of those facilities to ensure there are no adverse impacts.

In addition to these state-identified constraints, power generation facilities may not be suitable along high elevation lands, ridgelines, and any areas immediately viewable from our historic village and hamlets. Installations are not suitable if they have undue adverse impacts to cultural or historical resources including state or federally designated historic districts, and structures. These constraints do not prohibit the Town's ability to reach the energy generation targets identified in the resource acreage analysis above.

**Grafton's Energy Targets and Conservation Goals**

The Windham region was given an overall renewable energy generation target, as determined by the Department of Public Service, based on its percentage of the state's population (which directly affects its share of statewide consumption). The Windham Regional Commission (WRC) then determined energy generation targets for each of their member-towns, based on both the resource availability in town and its population. The resulting town generation targets are an average between those two characteristics.

**Power Generation Targets**

According to Vermont's 2016 Comprehensive Energy Plan, in order to meet the state's overall goals, Grafton should be generating approximately 949 megawatt-hours (MWh) of power per year by 2050. This goal is based on averaging the following two calculated numbers:

- The Town's Share of the Regional Population.....854 MWh/year
- Share of Regional Resource Availability.....1,043 MWh/year
- Average .....949 MWh/year

This goal includes the following benchmark targets:

<b>Year</b>	<b>Energy Generation/Year</b>
• 2018 (present generation) .....	85 MWh
• 2025 .....	263 MWh
• 2035 .....	422 MWh
• 2050 .....	949 MWh

As the following table and graph shows, even if Grafton meets the energy production goal above, it will have minimal impact on the overall amount of energy we will still need to import. That said, we believe that, as a Town, we must do our part, no matter how small to contribute to the larger cause.

<b>Energy Source</b>	<b>2017</b>	<b>2025</b>	<b>2035</b>	<b>2050</b>
Imported	32,144 MWh	31,966 MWh	31,808 MWh	31,281 MWh
Local	85 MWh	264 MWh	422 MWh	949 MWh

Table #4

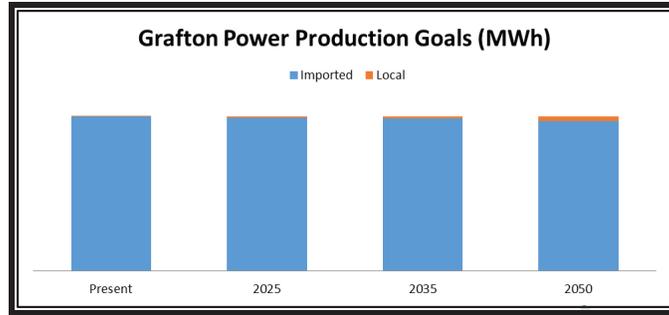


Figure #6

Grafton believes this goal can be met through the installation of a series solar photovoltaic arrays. In order to meet the goal of 949 MWh of electricity per year, 730 KW of solar photovoltaic will need to be installed. Using 60 acres of land per megawatt of electricity as an extreme high estimate, it will require the identification of 44 acres of solar capable land to be set aside as a "safety net". On average, solar installations actually require about eight acres per megawatt, which means Grafton will need approximately six acres of land for solar photovoltaic panel installation to meet the goal.<sup>26</sup>

Although localized power generation can occur in the town and supply its residents with reliable, affordable, and clean power, the town is also challenged by the current amount of energy being used. In order to minimize the amount of energy generation required, the town must also develop strategies to reduce the amount of energy consumed.

**Projected Energy Use: LEAP Model Results**

To help inform the town’s policies on energy conservation measures, the town used guidance from the Long-Range Energy Alternatives Planning (LEAP) system model, conducted by the Vermont Energy Investment Corporation as part of the state’s comprehensive energy planning initiative.

The LEAP model is used to guide the state’s regions towards reducing the amount of greenhouse gas emissions and consuming 90% renewable energy by 2050 (referred to as the “90x50” goal). To accomplish the state’s energy goals, there are several interim benchmarks built into the LEAP model which ensure a progressive pace in attaining that “90 x 50” goal. The state energy goals are:

1. Reduce greenhouse gas by 50% from 1990 levels by 2028 and by 75% by 2050.
2. Supply 25% of energy through renewable resources by 2025 (25 x 25)
3. Increase building efficiency of 25% of homes (80,000 units) by 2020.

Incorporating those goals into the model produced power generation, conservation, and fuel conversion targets for benchmark dates for all regions in the state, and is informed by the region’s current energy profile. The WRC received the results from this model and was tasked with making those results relevant to its member-towns. The WRC therefore divided its region-wide benchmark

<sup>26</sup> Based on current technology, the presence of substantial wind generating facilities in southwestern Windham County allowed the renewable energy generation targets for the remainder of the region to be significantly less than would be required without wind generation. In the case of Grafton, our generation goals match about 20% of our consumption. As an example, 2016 electric energy consumption was approximately 5000 MWh. If solar generation were to offset that on a net-metered basis then approximately 30 acres of land with good solar exposure would be required. This result can be computed from approximately 1.3 MWh of energy yield per year from 1 kW of well sited solar modules using the National Renewable Energy Laboratory program PVWatts and the approximate solar density of 1 MW of solar modules per 8 acres of land as cited by the Windham Regional Commission. Additional progress towards meeting our goals can be accomplished through conservation.

targets among its towns based on a number of factors including population, types of residences, and number and type of commercial buildings.

The following paragraphs and figures show Grafton’s LEAP model results, and how much energy could be conserved in order to reduce the burden of energy generation facilities in the region.

**Residential Heating Conservation & Fuel Conversion**

In order to determine how much energy would have to be conserved, combined with fuel conversion to renewable energy, the LEAP model produced both a “Reference” and “90x50” scenarios. The Reference scenario is meant to depict energy use over decades if no major changes were made in Grafton’s energy profile. The “90x50” scenario shows the pathway that Grafton will adopt in order to reduce greenhouse gas emissions, conserve energy, and generate renewable energy so as to meet the state’s goals. It is another data estimate that serves to help inform the Town to develop its own policies for energy conservation and fuel conversion.

Figures #9 & #10 show the LEAP results for Grafton’s residential and commercial heating sectors. In both the Reference and 90x50 scenarios, energy consumption is modeled to decrease (because of technological improvements, building innovation, and home efficiency improvements). However, the 90x50 scenario shows a sharper increase in the amount of energy conserved in residential heating.

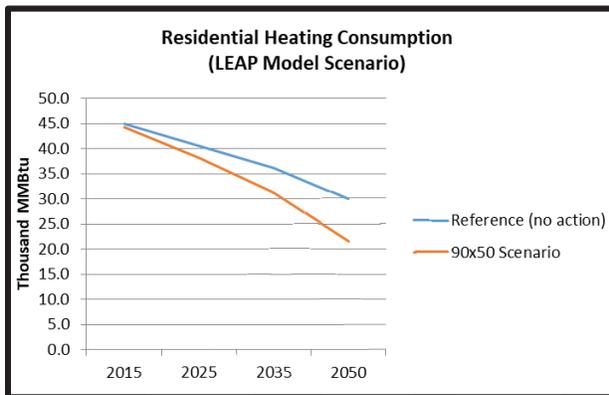


Figure #7

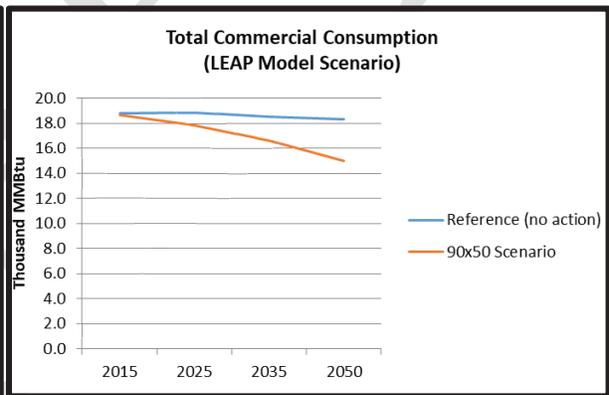


Figure #8

Figures 11 & # 12 show Grafton’s energy conservation targets through 2050. Not only will energy need to be solely conserved by building efficiency measures, but fuel conversion to more efficient energy sources will be promoted.

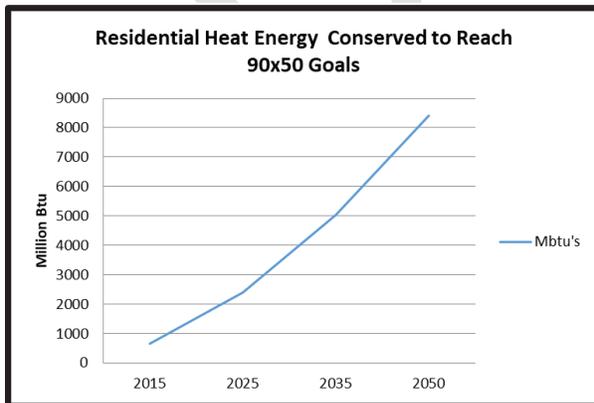


Figure #9

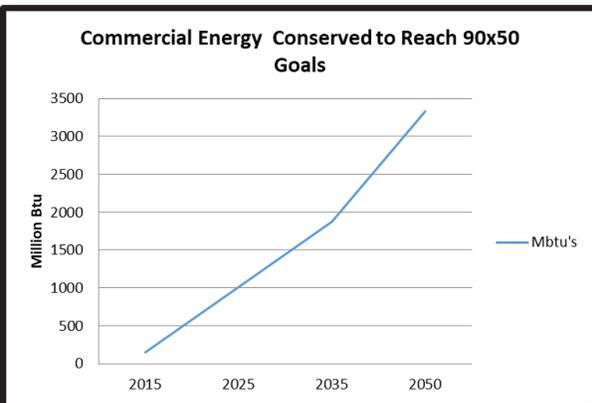


Figure #10

In order to attain the overall energy goals, the following energy efficiency targets have been established for Grafton.

**Grafton Weatherization and Energy Efficiency Improvement Goals**

<b>Residential Thermal</b>			
<b>Sector/Use</b>	<b>2025</b>	<b>2035</b>	<b>2050</b>
Estimated number of municipal households to be weatherized.	69	134	276
Percent of municipal households to be weatherized	14%	28%	57%
<b>Commercial Thermal</b>			
<b>Sector/Use</b>	<b>2025</b>	<b>2035</b>	<b>2050</b>
Estimated number of commercial establishments to be weatherized.	2	4	7
Percent of commercial establishments to be weatherized.	9%	16%	30%
<b>Electricity</b>			
<b>Sector/Use</b>	<b>2025</b>	<b>2035</b>	<b>2050</b>
Electrical energy to be conserved, annually.	307,500 KwH	502,500 KwH	735,000 KwH
Percentage of homes and buildings to be upgraded with electric efficiency improvements.	42%	68%	100%

*Table #5*

Additionally, the LEAP 90x50 scenario has set the following ‘Fuel Switching’ goals for Grafton between now and 2050.

**Grafton Fuel Switching Goals**

<b>Residential and Commercial Thermal Fuel</b>			
<b>Sector/Product</b>	<b>2025</b>	<b>2035</b>	<b>2050</b>
New high efficiency wood stoves	169	156	146
New wood pellet systems only (in units)	36	39	49
<b>Residential and Thermal Fuel</b>			
<b>Sector/Product</b>	<b>2025</b>	<b>2035</b>	<b>2050</b>
New heat pumps (in units)	64	126	178

*Table #6*

**Transportation System Changes**

Transportation-related efficiency strategies are a very significant part of Grafton’s efforts, since transportation represents a significant portion of the energy demand. Simple changes, such as ride-sharing, combining trips and using alternative transportation, will conserve fuel and reduce wear and tear and maintenance costs on individual vehicles. Fuel efficient and electric cars will use less gasoline and emit less pollution.

The LEAP model created benchmark targets for both light and heavy duty vehicles, assuming a difference in residential and industrial energy needs and changes over time. Below are the two interpretations of these sector’s efficiencies over time.

## Light Duty Vehicles

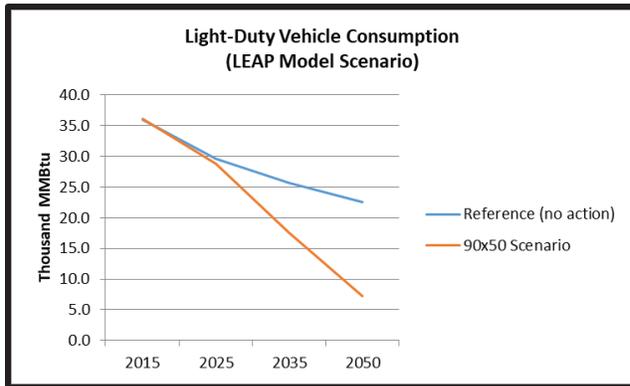


Figure #11

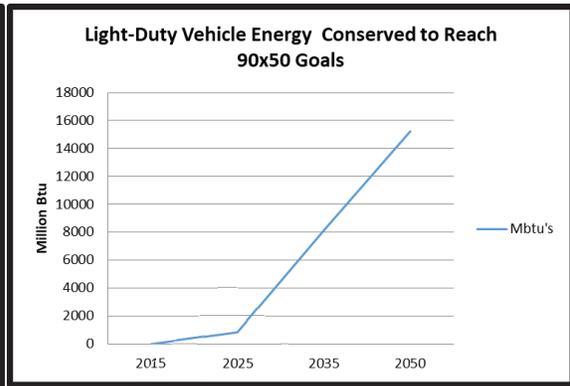


Figure #12

## Heavy Duty Vehicles

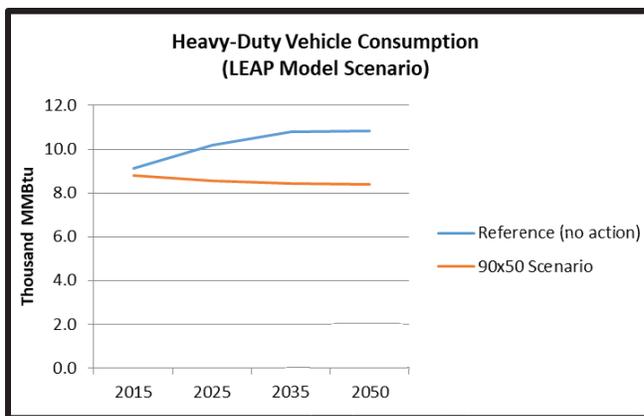


Figure #13

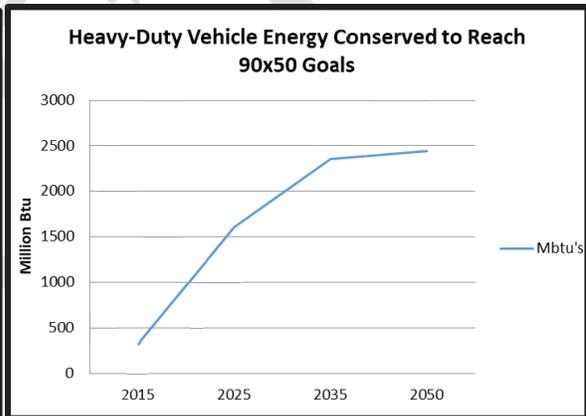


Figure #14

Light-duty vehicle consumption represents a larger portion of the total amount of energy consumed by the transportation sector, and there is a large amount of energy conservation required. The LEAP model projects much of this conservation of energy comes from the electrification of the vehicle fleet, especially as market demand changes and technology improves. This reduction in gasoline consumption and electrification of the car motor comes in addition to increased cluster developments and other land use changes that improve the efficiency of our community's transportation network. The following goals are identified by the 90X50 model for the town's transportation fuel conversion:

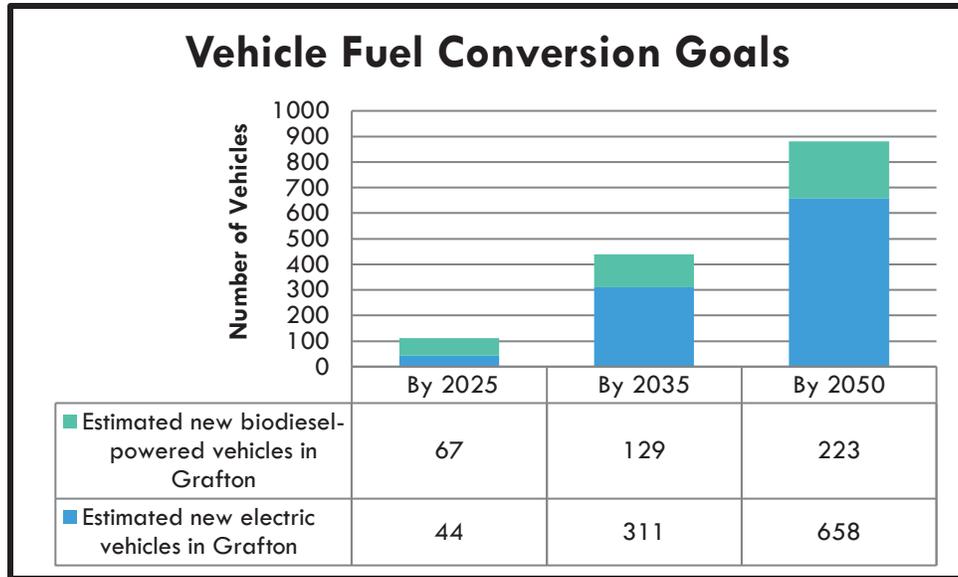


Figure #15

Heavy-duty vehicle consumption doesn't show the same curves as per light-duty vehicles, since commercial and industrial applications for this vehicle fleet isn't anticipated to change as much. However, efficiency in this sector is achieved by changing the fuel type for these vehicles from diesel to bio-diesel.

### Electricity Conservation

In the "Reference Scenario" electricity rates are anticipated to increase over the benchmark years, due to a combination of more amenities, appliances, and motors being supplied by electric power, and an increase in the number of people using those products. The 90x50 scenario promotes electricity conservation in the form of energy-efficient appliances, lighting, and heating/cooling. Pursuing these upgrades, the town is targeted to save the following through electrical conservation measures:

Goals	2015	2025	2035	2050
Number of Buildings to be Upgraded	21	69	134	276
Energy Savings Goals	161 MWh	599 MWh	978 MWh	1,431 MWh

Table #7

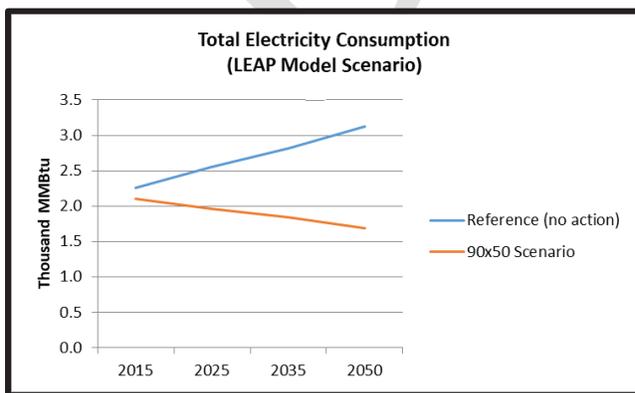


Figure # 16

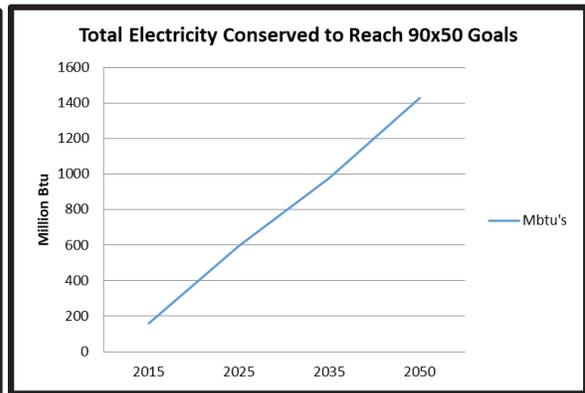


Figure # 17

## **Conservation and Efficiency Strategies**

With total annual energy expenditures in the Town of approximately \$362 million, there is considerable opportunity for savings from various energy conservation and improved efficiency measures. Because most of the energy use in Grafton is for private uses (home heating, commuting, etc.), savings would accrue primarily to residents. Public education is one of the most effective strategies to bring about savings through energy conservation and improved efficiency, though there are some specific policies that can also move the community in that direction.

Most new residential and commercial construction in Grafton is guided by the Vermont Building Energy Standards through the use of air sealing, insulation, heating systems, and weatherproof windows and doors. Current building codes provide basic energy efficiency standards for buildings; however, technology advancements have generated higher standards such as net-zero energy construction standards in which buildings generate as much energy as they consume. Green construction and LEED Construction (Leadership in Energy and Environmental Design) standards promote the use of natural, recycled and durable building materials, as well as energy efficiency. These efficiency standards are also applied to landscaping, advocating for native plantings that are low maintenance.

The siting, design, and construction of buildings strongly influences the amount of energy needed for heating as well as the amount of electricity needed for lighting. Proper subdivision design, building orientation, attention to solar access by easement, construction and landscaping provide opportunities for energy conservation such as less vehicular travel, and by designs incorporating passive solar space and domestic hot water heating, natural lighting and photovoltaic electricity production.

Energy savings can be realized by retrofitting existing buildings with air sealing insulation, installing high-performance windows and doors to reduce heat loss, weather-stripping, replacing incandescent lights with LED's, and using energy efficient appliances.

## **Programs and Organizations Available to Support Grafton's Energy Goals**

Southeastern Vermont Community Action (SEVCA) is the service provider in Windham County that runs the Weatherization Assistance Program. Weatherization services, which include an energy audit, diagnostic tests, analysis and installation measures, are available at no cost to income-eligible homeowners and renters. SEVCA is also available to help in the event of a heating emergency. They can help purchase oil, kerosene, propane or wood. In addition, they also work with electric companies in order to prevent disconnection and help negotiate payment plans.

Efficiency Vermont is the State's provider of energy efficiency services. They provide technical and financial assistance to electrical consumers for the purpose of improving the efficiency of existing and new facilities.

ENERGY STAR Home Rebates are available for homes that meet strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and U.S. Department of Energy. Efficiency Vermont provides free financial, design, and technical to help build an ENERGY STAR qualified home. Benefits of being an ENERGY STAR home include financial incentives such as product rebates; utility savings; higher resale value; increased comfort and air quality; and other environmental benefits.

Vermont Housing Finance Authority's Energy Saver Loan Program, administered by Windham Housing Trust, offers low interest loan funding for homeowners for an energy audit and improvements specified in the audit.

## **Goals, Policies & Recommendations**

### **Goals**

1. Residents of Grafton will have access to a reliable, sufficient, and economical energy supply for heating, transportation and electrical use without causing undue adverse impacts to humans and the environment.
2. The Town of Grafton will increase its overall energy conservation and efficiency annually in line with the 2050 LEAP goals through a variety of means including, but not limited to: weatherization, installation of fuel efficient heaters, including heat pumps, and wood and pellet stoves.
3. Residents will have access to safe, convenient, economical, and energy efficient transportation systems including options such as public transit and paths for pedestrians and bicyclists, where appropriate. Future land development will consider transportation needs of future residents.
4. Appropriately scaled and sited energy generation technology will be planned and constructed as Grafton does its part to help the state meet the 2050 energy goals.

### **Policies**

1. The Town of Grafton will reduce total energy use by promoting energy conservation and efficiency measures and a shift toward renewable energy sources.
2. The Town of Grafton will work to reduce transportation energy demand and single-occupancy vehicle use, and encourage the use of renewable or lower-emission energy sources for transportation.
3. The Town of Grafton will promote appropriate land use patterns and development densities that result in the conservation of energy.
4. The Town of Grafton will locate zones and/or areas appropriate for renewable energy generation based on resource potential and development constraints. With regard to all energy generation, transmission, and distribution projects:
  - a. Adhere to a high environmental standard that includes avoiding negative environmental impacts to the extent possible and adequately minimizing and mitigating those that cannot be avoided;
  - b. Conduct thorough and proper studies and analyses of all anticipated socioeconomic and environmental impacts, both positive and negative;
  - c. Adequately address all areas of concern regarding proposed developments; and
  - d. Effectively and adequately address all issues related to facility operation and reliability.

### **Recommendations for Action**

1. The Energy Coordinator, in conjunction with the Selectboard, the Planning Commission and others, should
  - a. facilitate the retro-fitting of existing structures with energy saving measures such as air sealing insulation, energy efficient windows, heating equipment, and energy efficient appliances.
  - b. encourage appropriate energy conservation and efficiency measures and alternative energy generation by individuals and organizations through public education, awareness, and engagement. Activities might include:

- i. providing resources to residents on energy conservation, efficiency, and renewable fuel options.
  - ii. working with the Grafton Elementary School to develop an energy awareness curriculum.
  - iii. educating residents of state energy codes.
- c. locate public lands that are appropriate for renewable energy generation.
  - d. encourage the reduction of outdoor lighting costs by the use of energy-efficient lighting fixtures and motion sensitive security lighting.
  - e. examine opportunities for providing home energy audits for resident and property owners so that they may take action to conserve energy and reduce related costs.
  - f. promote Go! Vermont ([www.connectingcommuters.org](http://www.connectingcommuters.org)) on the town website and examine ways to facilitate car and van pools and ride-sharing.
2. Alternative Fuels
- a. Promote switching to wood, liquid biofuels, biogas, geothermal, and air sourced heat as fuel sources, when applicable.
  - b. Promote other suitable devices such as advanced wood heating systems and cold-climate heat pumps, or other energy efficient heating systems.
  - c. Identify potential locations for, and barriers to, deployment of biomass district heating systems preferably configured as combined heat and power systems.
3. Conservation
- a. Support the use of energy efficient appliances, heating units, lighting, and other powered devices.
  - b. Support programs for insulation and weatherization of new and existing dwellings, especially for low and moderate-income households.
  - c. The Town's Administrative Officer should inform homebuilders about the Vermont Residential Building Energy Code and encourage contractors to file certificates of compliance upon completion of construction.
  - d. Commit to energy conservation in all Town properties, facilities, and vehicles by conducting energy audits on all town properties and other facilities and prepare an energy efficiency improvement plan that emphasizes energy reduction and efficiency as facilities are upgraded, replaced, or expanded.
4. Transportation
- a. Examine the feasibility of creating a park-and-ride facility within walking distance of Grafton Village
  - b. Investigate locating additional electric vehicle charging stations in Grafton Village.
  - c. Encourage the increased use of public transit, as appropriate.
  - d. Promote a shift away from single-occupancy vehicle trips through strategies identified in the Transportation chapter.
  - e. Encourage, through transportation policies, opportunities for walking, and cycling, or other energy efficient alternatives to the automobile. The Town should consider implementing improvements that encourage safe and convenient walking and biking.
  - f. Examine the creation of bicycling corridors between Grafton and Bellows Falls and between Grafton and Chester to promote seasonal commuting and tourism. This will include

- prioritizing design of highway and bridge upgrades to include space such as safe shoulders and separate lanes, when space allows, enhancing safety when bikers are passed by motorists.
- g. Promote the individual use of electric vehicles over fossil fuel vehicles.
  - h. Post “No Idling” signs at public facilities and businesses.
  - i. Consider current and future technological advancements for fuel efficiency as part of the decision-making process during the purchase of future Town vehicles.
5. Land Patterns
- a. Protect the Town’s historic settlement pattern of thickly settled villages and hamlets and open landscapes. from undue adverse impacts associated with commercial energy generation and new transmission facilities.
  - b. Minimize the need for new facilities and reliance on the private automobile by directing development to designated concentrated development and limiting such development in the least accessible areas of the community.
  - c. In conformance with Act 171, promote land use and conservation policies that protect forest blocks and habitat corridors. Encourage ongoing forest management to maintain a local source of fuel-wood harvested no faster than regeneration. Encourage local farms to maintain and increase the supply of locally produced food.
6. Energy Generation and Distribution
- a. Support appropriate energy generation, including biomass using local wood supplies, solar, and dispersed residential wind, solar and hydro-power sources in Preferred Areas in Town. The Selectboard and Planning Commission should clearly identify the criteria for these areas.
  - b. Small-scale active and passive solar installations, specifically on rooftops, rather than larger scale ground mounted utility installations should be prioritized.
  - c. Support residential wind generation facilities where there are no adverse wildlife, ecological, or sound effects to nearby residences.
  - d. Support small-scale micro-hydro systems along small streams where there are no adverse impacts on natural resources.
  - e. Discourage utility-scale and commercial-scale wind energy generation.
  - f. Encourage any potential commercial generation facilities to be within the areas deemed most suitable as described in this Enhanced Energy Element and within the Energy Generation Potential maps, and maximize potential for those facilities in these preferred areas.
  - g. Support residential and commercial sized net-metering energy production projects where siting constraints are favorable.
  - h. When considering upgrades to or expansion of transmission infrastructure or 3-phase power lines, encourage the strategic development of energy generation facilities so that community centers and local businesses may benefit from the infrastructure upgrades, thereby maximizing positive community development overall.
  - i. Promote the siting of renewable energy generation facilities within compatible Land Use districts, namely within Productive Rural Land in such a manner that minimizes site disturbance and development, reduces impacts on local roads and infrastructure, and maximizes energy resource availability so as to provide the most benefit.
  - j. Encourage energy generation facilities in existing or prospective agricultural areas where the energy generation installations conform to, complement, or add value to the agriculturally-productive landscape or to the surrounding ecosystem services. The design of these facilities should complement existing agricultural operations.

- k. Discourage any renewable energy generation facilities in areas identified as unsuitable.
- l. Town of Grafton will demonstrate leadership by example with respect to the deployment of renewable energy by promoting energy generation facilities to offset the energy consumption of all Town buildings.
- m. Encourage an economically competitive energy conservation through increased operation efficiencies, technology upgrades, and availability of low-cost fuels,

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## 6. EDUCATION

### K-12 Education System



*Grafton Elementary School*

Grafton values its local public educational system and the traditions of involving children in our community. The local school is the heart of the community. Keeping Grafton alive and well and sustaining high standards to meet the needs of a demanding and ever-changing society requires a commitment to an excellent educational system. The success of Grafton community's school depends on meeting the needs of children early and providing the best possible educational resources. A quality school system is more likely to attract young and vibrant families to settle and remain as part of Grafton's future.

Because of a combination of tax laws and a history of supervisory unions, Grafton students are offered their K-12 public education through a somewhat convoluted organizational structure, with multiple school districts and different school boards. Along with Rockingham, Athens and Westminster, Grafton is one of four towns in the Windham Northeast Supervisory Union (WNESU). The WNESU has one superintendent and seven school boards including one for each of the four towns, one for the Grafton/Athens Joint Contract, one for Bellows Falls High School, and one for the overall supervisory union. A recent state law (Act 46) required supervisory unions to merge and become 'union districts'. This would eliminate the seven existing school boards and create one K-12 school board. Grafton voted against this merger at the 2017 Town Meeting, as did the other three towns in the WNESU. At this point the supervisory union is one of a very few in the State that has been given a waiver and are not required to merge, but the future of the organizational structure and its impact on Grafton is unclear.

Although Grafton students attend a variety of educational institutions throughout their K-12 experiences, students can most clearly be represented by three groups, Elementary (Grades Pre-K through 6), Middle (Grades 7 & 8), and High School (Grades 9 through 12).

#### **Elementary School (Grades Pre-K through 6)**

WNESU offers Pre-K services to all Grafton students in one of three locations around the supervisory union. The Towns of Grafton and Athens offer K-6 education at the Grafton Elementary School (the building) through the Athens/Grafton Joint Contract District (the school district). The Joint Contract District has three board members from Athens and five from Grafton and is part of the Windham Northeast Supervisory Union. Although Grafton students can attend any elementary school of their choice, the Town of Grafton only pays for tuition for those attending Grafton Elementary School.

The Grafton Elementary School houses 6 classrooms, a library, a gym/cafeteria, administrative space, nursing office, and counselor's space. Each classroom is equipped with its own private bathroom and an emergency exit. The building is equipped with high-speed wireless internet service

and each child has a Google Chromebook for educational uses, including but not limited to research-based projects, online tutorials in academics, submission of work via Google Classroom, writing/editing/publishing and even online games to bolster math and reading comprehension skills. Many of the educators utilize modern educational technology such as interactive touch display systems that replace traditional blackboards.

Grafton Elementary School serves breakfast, lunch, and snack to its students daily. Food services are contracted by WNESU through Café Services of Westminster. Menu options follow Federal Guidelines for a “Qualifying Meal” and include multiple servings of whole fruits and vegetables at each meal. When possible, the choices include local produce or other goods: the maple syrup served is from Plummer Farm!

The Grafton Elementary School building is also a multi-use building for other organizations in town. The building is also used for meeting space by town administrative offices, practice space for recreational sports teams and other youth groups within Athens and Grafton.

### **Middle School (Grades 7-8)**

Seventh and eighth grade students are allowed to attend virtually any middle school of their choice, including private and out-of-state schools. Tuition is paid for by Grafton taxpayers, with a maximum per student set by the State. Bellows Falls Middle School is part of the Windham Northeast Supervisory Union and provides transportation for Grafton students, but only hosts about one third of the students. Most of the other two thirds attend either Green Mountain Union High School in Chester and Leland and Gray Middle and High School in Townshend. Other middle schools attended in the recent past have also been The Compass School and The Putney Grammar School.

### **High School (Grades 9-12)**

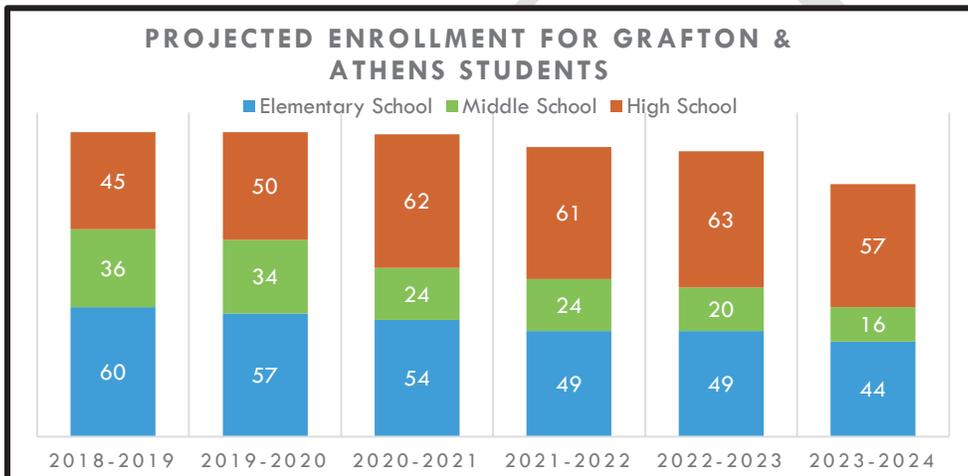
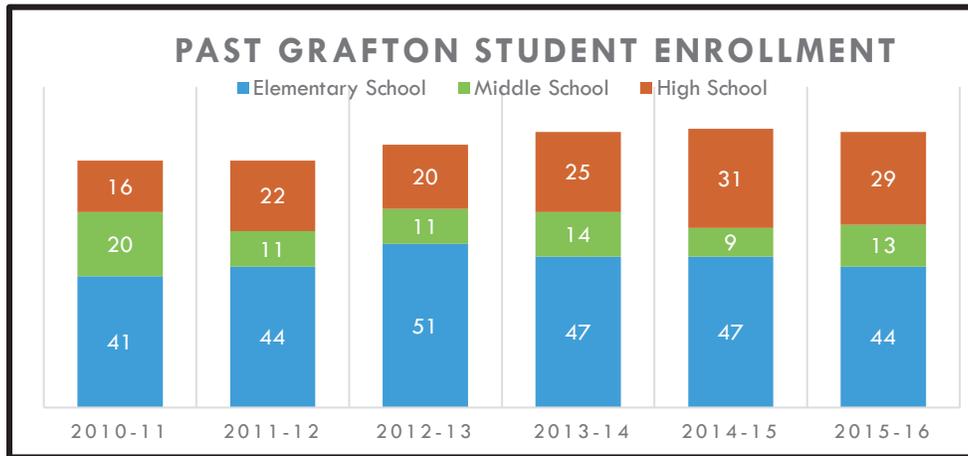
As part of the Windham Northeast Supervisory Union, Bellows Falls Union High School is Grafton’s assigned high school. The town has a representative on the high school Board and provides transportation for Grafton students attending the high school. Because of Vermont’s ‘school-choice’ law though, Grafton high school students can attend any one of 14 high schools in the southeastern Vermont region. This does not include private or out-of-state schools. As with middle school, Grafton high school students are about equally divided between Bellows Falls High School, Green Mountain High School, and Leland and Gray High School.

During eleventh and twelfth grades students can also attend one of two regional career and technical centers are part of their high school experience. Students attending Green Mountain High School can attend the River Valley Technical Center (RVTC) in Springfield; students attending Leland and Gray High School can attend the Windham Regional Career Center (WRCC) in Brattleboro; and students attending Bellows Falls High School can attend either. The Vermont legislature passed Act 46 in 2015, creating a variety of additional pathways to graduation including early college entrance (VAST Program), online-courses, dual enrollment in college and work-based learning opportunities. Act 46 also changed high school graduation requirements from ‘credit-based’ to ‘proficiency-based’, which requires students to specific levels of proficiency in all subject matter before graduation.

### **Student Enrollment**

Although past data can show enrollment data for Grafton students, it is more difficult to disaggregate Grafton data from Athens data when making projections. The first of the two graphs below shows just Grafton students; the second graph includes both Grafton and Athens students. Until recently Grafton has had significantly more student-aged residents than Athens, but because of

a combination of Grafton’s recent reduction in this age group and Athens’ recent increase, there are now more Athens students attending Grafton Elementary School than there are from Grafton.



**Educational Opportunities for Adults**

**Vermont’s Adult Education and Literacy Programs** – These programs are offered through Learning Works, Vermont’s Adult Education & Literacy system. Brattleboro and Springfield are the centers closest to Grafton. These programs offer services ranging from beginning to advanced literacy in math, reading, writing, interpersonal skills, workplace skills, general educational development, adult diploma programs, commercial driver’s licensing, and basic computer instruction. Through the Adult Diploma Program, adults may earn a high school diploma from a local high school.

**Community College of Vermont (CCV)** – CCV is part of the State of Vermont College system, offering associate degrees, career-related certificates, and credit and non-credit training programs. Their curriculum includes liberal arts, business, human services, technology, and allied health. Grafton residents can take advantage of the advance study programs in Springfield and Brattleboro without the need to commute long distances. Currently there are sixteen associate degree programs and seven career certificates.

**Howard Dean Center** – The Howard Dean Center has a wide range of educational programs that are presented by businesses and colleges. The Center, located in Springfield, is a 90,000 square foot building that has a range of spaces and facilities to support educational programs. Classrooms, technology facilities, and even kitchen spaces have been created for educational uses.

**Parks Place Resource Center in Bellows Falls** – Parks Place provides adult education programs to include life skills training, vocational rehabilitation, and adult tutoring for preparation with the GED and High School Completion Program.

**Distance Learning** – These opportunities are available to everyone with access to a computer and high speed internet connection. Online programs require some on-campus commuting and so degrees and certificates offered by the New Hampshire and Vermont Community College System and State College External Degree Programs, University of Vermont and University of New Hampshire, and Norwich University Online provide a reasonable option for Grafton residents to further their education.

**Other Opportunities** – There are additional post-secondary educational opportunities that are accessible to Grafton residents. Multiple higher education scholarship opportunities exist including those sponsored by the Grafton Women’s Community Club, the Grafton Improvement Association and the Grafton Fire Auxiliary.

## **Goals, Policies & Recommendations**

### **Goals**

1. Provide effective and efficient educational facilities and programs for Grafton residents.
2. Develop a process for responding to changing educational needs and for assessing progress toward meeting those needs, in keeping with the values and aspirations of the Grafton community.
3. Help each student realize his/her potential, lead a successful and satisfying life, and making a meaningful contribution to our local and global communities.

### **Policies**

1. Assure that Town residents have input into the decision-making process and be aware of actions being considered by the Windham Northeast Supervisory Union (WNESU), the Union District #27 High School Board and the Athens/Grafton Joint Contract School Board.
2. Make certain that all Town students have an educational program, which motivates and equips them to become self-supporting and participating members of a democratic society.
3. Promote total literacy for all Town adults.
4. Encourage Grafton residents to apply for educational programs, which will equip them for new job opportunities.
5. Work to assure that all elementary school graduates are literate, mathematically competent, and emotionally prepared for the next level of education.
6. Work with regional educational organizations to encourage adult education at all levels and to make all adults aware of available courses.
7. Encourage Grafton Library and other community groups, including businesses, to be partners with the school to make full use of the human and organizational resources in Grafton.
8. Integrate technology into appropriate classroom activities and instruction.

### **Recommendations for Action**

1. The School Board should continue its efforts to maintain enrollment in the elementary school at an optimum class size through arrangements with neighboring school districts or by recruiting tuition students from outside the District.
2. Develop communication between the elementary school and both pre-school and childcare programs.
3. Continue using school facilities for adult education, informational programs, Town functions, and physical fitness opportunities.

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## 7. HOUSING

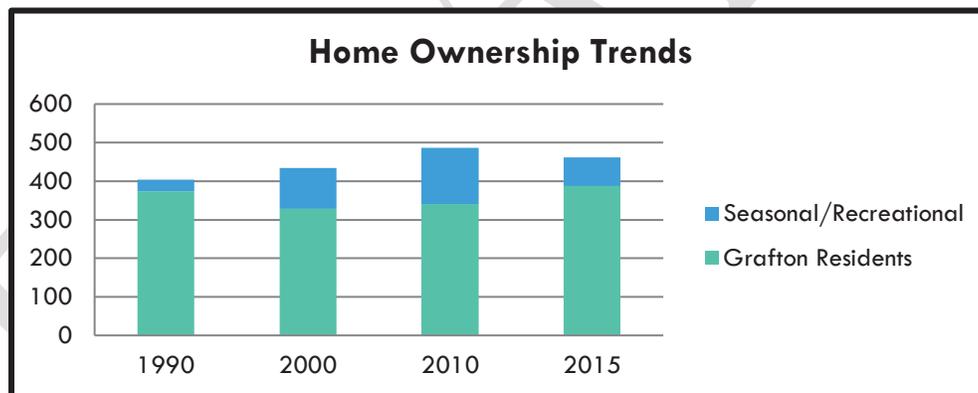
An adequate supply of year-round housing which offers a variety of size, cost and location is essential to the economic and social health of the Town. It is a benefit to the Town when residents, new and long-time, can work in Town, their children are able to buy or rent a home in the Town, and elderly residents are able to remain in the Town with their families and friends. The social fabric of a community is stronger when work, home and family are within that community. Providing safe, affordable and convenient housing for all is a priority for Grafton and its neighboring Towns.

Because Grafton does not have zoning regulations, the requirements of 24 VSA 4412, as it addresses affordable housing, including mobile homes and accessory structures, do not negatively impact development in Grafton. The only limitation is the Town Plan, and only when there is a procedure, such as Act 250 hearings, where the Town Plan is a relevant development-regulating document. Thus, the opportunity and potential to develop affordable housing in Grafton is unlimited, except in Act 250 proceedings.

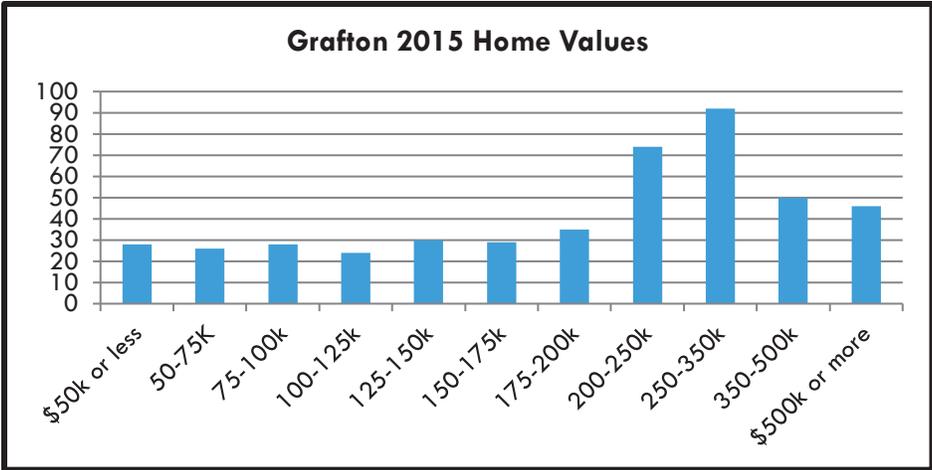
### Home Ownership

#### Seasonal Housing

In 2010, seasonal/recreational housing accounted for 30% of all housing, up from 24.4% in 2000, and 7.7% in 1990. But the percentage dropped significantly by 2015. From 2000 to 2010, the number of housing units in Grafton increased by 12%, from 434 to 486 units, while total households rose by 8%, from 291 to 313.



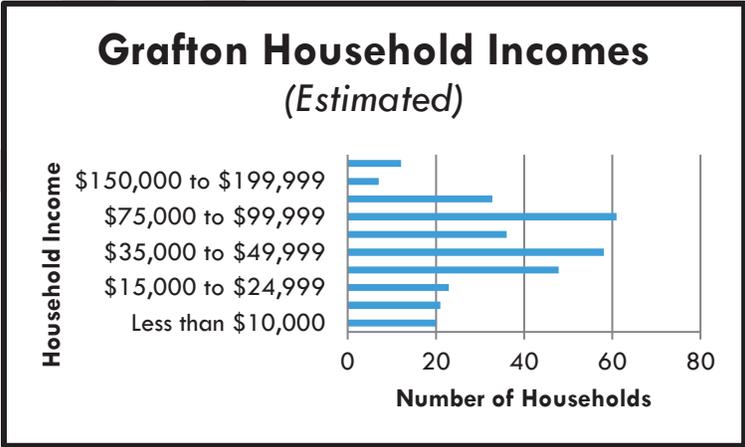
Approximately 90% of Grafton's housing stock is single family homes. Grafton has few manufactured homes (9%) and very few multifamily homes (1%). Based on Grafton's January 2016 grand list, 29.5% of residential homes are valued at less than \$150,000 which is a purchase price that is affordable for households earning an income of \$47,614.



Grafton Housing Values		
Market Value	Number	Percentage
\$50k or less	28	6.1%
50-75K	26	5.6%
75-100k	28	6.1%
100-125k	24	5.2%
125-150k	30	6.5%
150-175k	29	6.3%
175-200k	35	7.6%
200-250k	74	16%
250-350k	92	19.9%
350-500k	50	10.8%
\$500k or more	46	9.9%

**Housing and Income Analysis**

According to the 2014 American Community Survey there were 319 households<sup>29</sup> in Grafton. The Median Household Income (MHI) in Grafton (\$47,614) was lower than the MHI of Windham County (\$50,526).<sup>30</sup> Approximately 46% of the Grafton households are at or above the county MHI.



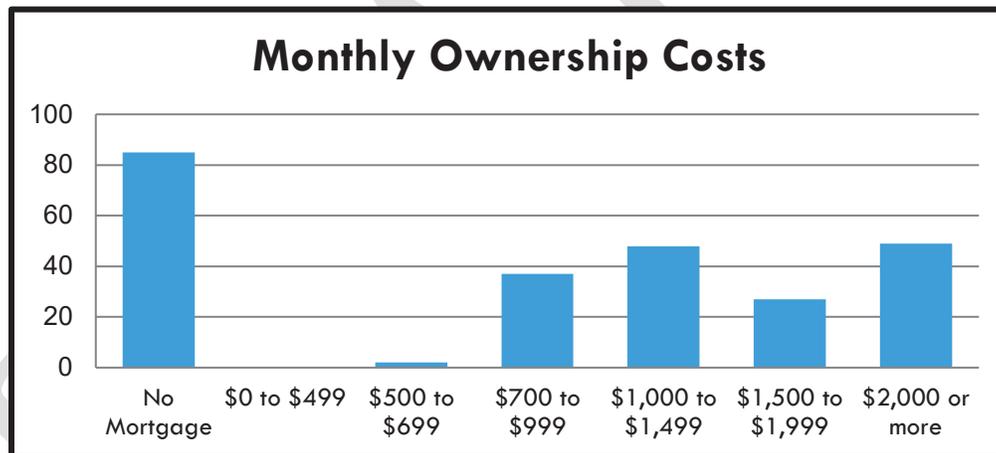
<sup>29</sup> A HOUSEHOLD is defined as including all the people who occupy a housing unit as their usual place of residence.  
<sup>30</sup> The American Factfinder

Grafton Household Incomes				
Income	Households	Families	Married-Couple Families	Nonfamily Households
Less than \$10,000	20	14	7	6
\$10,000 to \$14,999	21	8	8	13
\$15,000 to \$24,999	23	9	2	17
\$25,000 to \$34,999	48	35	29	13
\$35,000 to \$49,999	58	36	31	22
\$50,000 to \$74,999	36	23	23	10
\$75,000 to \$99,999	61	45	45	16
\$100,000 to \$149,999	33	25	23	8
\$150,000 to \$199,999	7	4	4	3
\$200,000 or more	12	12	12	0
<b>Total</b>	<b>319</b>	<b>211</b>	<b>184</b>	<b>108</b>

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates

### Selected Monthly Owner Costs

Approximately 34.3% (85) of the homes in Grafton don't have mortgages. Of the 248 households with mortgages, approximately 172 (69.4%) spend \$1,500 or less on their monthly mortgage.



Mortgage and Selected Costs Per Month		Number of Households	Percentage
With a Mortgage	\$0 to \$499	0	0.0%
	\$500 to \$699	2	1.2%
	\$700 to \$999	37	22.7%
	\$1,000 to \$1,499	48	29.4%
	\$1,500 to \$1,999	27	16.6%
	\$2,000 or more	49	30.1%
No Mortgage		85	34.3%
<b>Totals</b>		<b>248</b>	<b>100.0%</b>

2010 Census Data

The monthly mortgage is only one part of ownership costs. Many government agencies consider Selected Monthly Owner Costs<sup>32</sup> as an accurate measure of overall ownership costs. Selected Monthly Owner Costs that exceed 30 % of household income are considered excessive. Over 40% of Grafton residents have Selected Monthly Ownership Costs over 30% of their monthly household income.

Home Affordability Analysis						
Home Value	Number of properties available at or below this value <sup>a</sup>	Monthly mortgage <sup>b</sup>	Monthly taxes <sup>c</sup>	Other home related monthly expenses <sup>d</sup>	Minimum Household Income (MHI) needed to afford the home	Estimated percent of households able to afford the home <sup>e</sup>
<b>\$200,000</b>	166	\$761	\$306	\$430	\$59,560	36%
<b>\$150,000</b>	101	\$571	\$230	\$429	\$48,960	46%
<b>\$125,000</b>	74	\$594	\$191	\$400	\$47,200	46%
<b>\$100,000</b>	55	\$380	\$149	\$375	\$36,200	60%

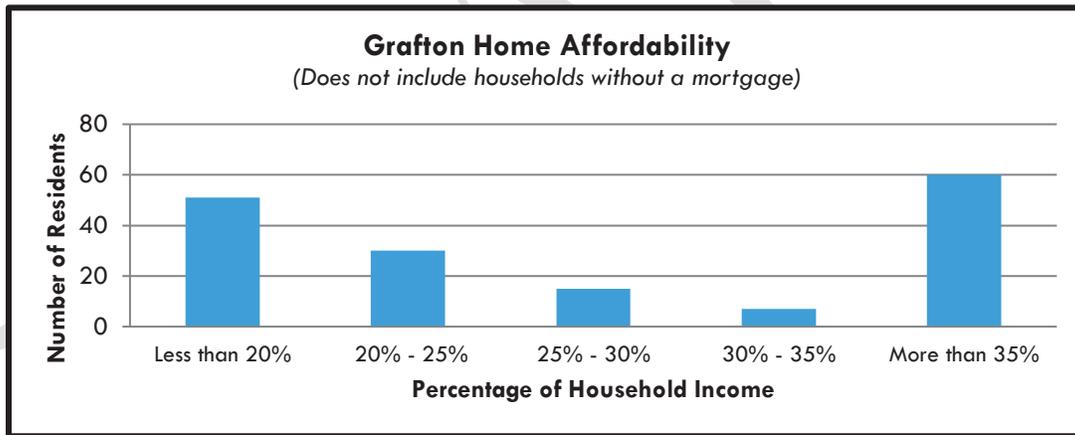
<sup>a</sup> Based on Grand List as of July 2016 from Town Of Grafton

<sup>b</sup> Calculation based on 80% mortgage, 30 yrs., 4% interest

<sup>c</sup> Based on 2015-16 Town Property Tax Rate, including School

<sup>d</sup> Insurance, fuel, electricity, water, sewer, estimated, as there is no hard data in the Census

<sup>e</sup> Based on 2010 Census of Median Household Income (MHI) for Windham County and 30% of MHI available for housing. Highlighted row is at the 30% monthly MHI of \$1,224.



Percentage Costs/Income	Number	Percentage	Percentage at or below this level
Less than 20.0%	51	31.3%	31.3
20.0 to 24.9%	30	18.4%	49.7
25.0 to 29.9%	15	9.2%	58.9
30.0 to 34.9%	7	4.3%	63.2
35.0% or more	60	36.8%	100.0
<b>Totals</b>	163	100.0	-

*Selected monthly owner costs as a percentage of Household Income (SMOCAPI) – 2010 Census Data - 163 owner-occupied units, excluding units where SMOCAPI cannot be calculated.*

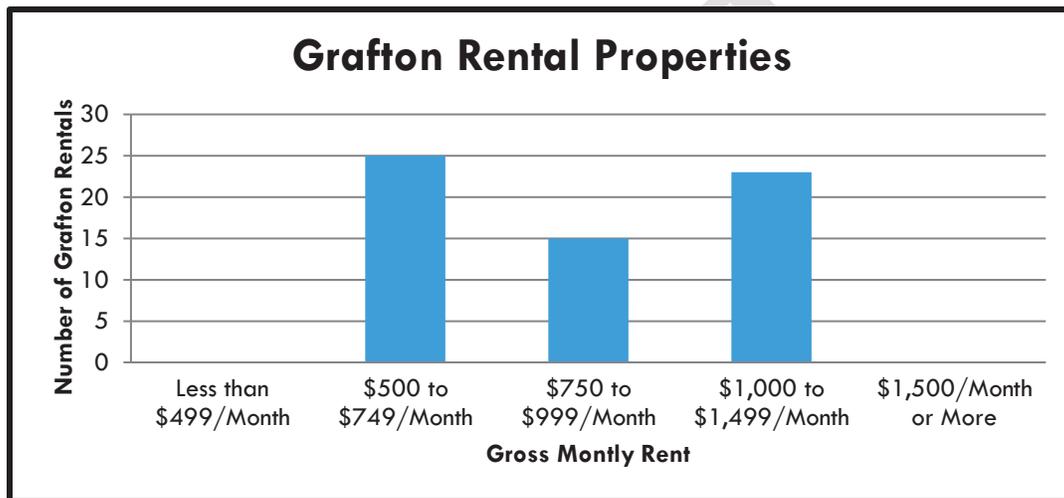
<sup>32</sup> The 2010 US Census calculates the “Selected Monthly Owner Costs” from the sum of payment for mortgages, real estate taxes, various insurances, utilities, fuels, mobile home costs, and condominium fees.

## Rental Properties

### Gross Monthly Rent

Gross Monthly Rent is similar to Selected Monthly Owner Costs and includes the monthly rent plus the estimated average monthly cost of utilities (electricity, gas, and water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid for by the renter (or paid for the renter by someone else). Gross Monthly Rent is intended to eliminate differentials which result from varying practices with respect to the inclusion of utilities and fuels as part of the rental payment.

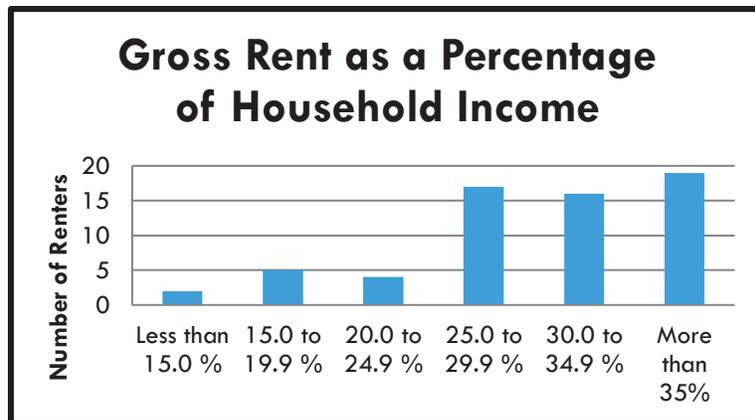
Grafton's median Gross Monthly Rent for the period 2008-2012 was \$930/month. In comparison, Windham County's median Gross Monthly Rent was \$771/month. According to the 2010 Census, more than 60% of residential units rented in Grafton cost less in Gross Monthly Rent than \$1,224, which is 30% of the monthly Median Household Income for the County of Windham.



Gross Rent per Month	Number (63 total)	Percent
< \$499	0	-
\$500 to \$749	25	39.7%
\$750 to \$999	15	23.8%
\$1,000 to \$1,499	23	36.5%
\$1,500 or more	0	-
<i>(Median Monthly Rent - \$881/Month)</i>		

*2010 Census, Gross Rent on household units in Grafton (excluding units where GRAPI cannot be computed)*

According to the 2010 Census, 44.4% of Grafton's renter households had Gross Monthly Costs under 30% of the Median Household Income.



Gross Rent as a % of Household Income	Number	Percent
Less than 15.0 percent	2	3.2%
15.0 to 19.9 percent	5	7.9%
20.0 to 24.9 percent	4	6.3%
25.0 to 29.9 percent	17	27.0%
30.0 to 34.9 percent	16	25.4%
35.0 or more percent	19	30.2%
<b>Totals</b>	<b>63</b>	<b>100.0%</b>

*2010 Census*

#### **Conclusion**

As for the State Goals for housing set forth in 24 VSA 4302, the Town of Grafton now by its daily practices meets and exceeds those goals. However, housing is still very expensive for people wanting to move into this community.

The Town encourages economic diversity of housing, single, multiple-family, rental units, accessory units, modular and mobile homes, as well as unfettered choices of location.

#### **Goals, Policies & Recommendations**

##### **Goals**

1. Continue to ensure the availability of safe and adequate housing.
2. Increase housing developments in Grafton of varying structural types to meet the needs of the elderly, disabled, low and moderate income working families, and those who, based on economic setbacks, need temporary and/or short-term housing.

##### **Policies**

1. Encourage multi-family housing or higher density development of single family housing in some areas of town in order to provide for the housing needs of low and moderate-income residents.
2. Continue to monitor and review the housing needs of Grafton.

##### **Recommendations for Actions**

1. Continue to review, promote, and support the promotion of the region and Grafton and their desirability as a place to bring business.
2. Promote residential development that meets the needs of diverse social, cultural and income groups.

## 8. RECREATION

The public recreation facilities in Grafton include the ball field, a natural swimming pond, and a 55-acre village park with footpaths and picnic sites. There are also miles of trails, unpaved roads, and forests used for hiking, biking, hunting, fishing, skiing, and horseback riding. Three state forests also exist within Grafton, they consist of the Mollie Beattie State Forest, the Putnam State Forest, and the John Dorand State Forest. These public facilities are used by schools, residents, and tourists. The Vermont Association of Snow Travelers (VAST) currently maintains over 30 miles of trails through these State Forests and privately-owned properties for snowmobiling.



The Windham Foundation provides recreational facilities, most of which are open to the residents, including a fitness center and tennis courts. Grafton Trails is a year-round outdoor recreation center run by the Windham Foundation. In the winter it offers 30 kilometers of Nordic skiing, snowshoeing, ice skating, and a 600-foot hill for snow tubing. In the summer, Grafton Trails offers more than 2,000 acres of mountain biking and hiking as well as paddle boats, disc-golf and weekly summer camps for kids. Equipment rentals, guided tours and lessons are also available. There are also walking paths starting in the village and ending at Grafton Trails that are maintained by the Windham Foundation as well. Along these paths, a sheep exhibit and blacksmith shop can be visited. For the 3rd of July, the Windham Foundation annually hosts the Vermont Symphony Orchestra followed by a fireworks display at the Grafton Ponds.

The Grafton Recreation Committee, a volunteer group, organizes many programs for children such as basketball, pee-wee baseball, Little League baseball, girls' softball, and soccer.

In 1919 Doctor Gilbert deeded to the Grafton Improvement Association (GIA) 3.1 acres of land and a right-of-away next to his house for use as a town playground. It's now used as a ball field and for other recreational events. The GIA supports the community in a variety of ways including providing portable restrooms for the town pool and Winnie Park, developing a hiking trail map of the area for residents and tourists, and financially supporting a variety of community events such as the Annual Town Picnic and the Trinity Riders horse shows and oxen pulls.

The Grafton Outing Club is recognized as an official snowmobile club operating under VAST, the statewide non-profit organization based in Berlin. The Grafton Outing Club grooms and maintains all the local area snowmobile trails. Contact information on the Grafton Outing Club can be found by visiting the VAST website

Culture and recreational assets that Grafton includes an award winning history museum, the educational Nature Museum at Grafton, The Grafton Public Library, the Town Hall and the Grafton Cornet Band founded in 1867. There are a variety of privately owned art galleries and antique shops throughout the town. The White Church in Grafton, noted for its fine acoustics, attracts a number of excellent musical events each year. Other activities and events include Grafton Cares weekly community luncheon and suppers, Grafton Band concerts, as well as Grange and Church sponsored Sugar on Snow and Strawberry Supers.

The Bellows Falls Area Senior Center and the Brattleboro Senior Center offer a range of social and recreational services for the senior population. Popular activities include lunches and dinners, lectures on special topics, and out-of-town trips. These regional senior centers augment the social, health, and recreational services provided by Grafton Cares.

The Windmill Hill Pinnacle Association is a nonprofit trails organization that operates in Grafton, Rockingham, and Athens. This group hosts trail hikes, provides trail building and ecology educational workshops, and provides maps for regional hiking trails. Groups like the Pinnacle Association can play a role organizing individual towns to plan, design, and build regional trail systems.

## **Goals, Policies & Recommendations**

### **Goals**

1. To maintain and develop recreational opportunities and facilities for youth and adults alike.
2. With the cooperation of the Grafton Improvement Association and others, upgrade and maintain the public recreational facilities in Grafton.

### **Policies**

1. Protect recreational lands and water areas whether used for sports, biking, hiking, fishing or hunting from being developed.
2. Ensure that there is access to these areas through existing Town right of ways or through the ancient road system.
3. Make sure that state laws and local ordinances are enforced in recreational areas concerning the use of snowmobiles and all-terrain or off road vehicles.

### **Recommendations for Action**

1. Encourage the groups already established to continue to maintain and upgrade the recreational facilities and explore new opportunities for residents and visitors alike.